FAQs in Gas Metal Arc Welding (GMAW)	
Sr. No.	**Questions & Answers**
1	What is the composition mentioned in the TC of GMAW Wire?
	Solid wire chemistry only. Not weldmetal.
2	When to use carbon dioxide and mixed gas for welding of GMAW wire?
	1. To reduce the weld operation cost 2. To improve the weld quality
3	What normal parameters are used for 1.2 mm GMAW wire?
	Welding parameters are depend up on the shielding gas & mode of metal transfer. Short Circuit : 140 – 180 A, 16 – 18 V Globular Transfer : 180 – 220 A, 20 – 24V Short Circuit : 240 – 300 A, 26 – 30 V
4	When is Argon + CO_2 gas mixture is preferred for welding of GMAW wire?
	1. For spatter less welding 2. To achieve High metal deposition rate or wire feed rate 3. To achieve spray metal transfer 4. To achieve better mechanical properties
5	Why is heater used while welding with CO_2 gas?
	To maintain the gas cylinder's temperature and ensure a consistent gas flow. This helps prevent the gas from freezing or reliquefying, which can damage equipment and stop work.
6	What is the gas consumption per kg of weld metal deposit?
	It was depend up on wire size, gas type& gas flow rate
7	What is the length of GMAW wire per kilogram?
	It was depend up on wire size, tolerance limit & Copper grammage
8	Weather ER70S-2 can be welded in carbon dioxide or mixed gas?
	Recommended for TIG welding only with Argon gas.
9	What is the deposition rate of 1.2 mm solid wire per hour?
	3.5-4.0kg/ arcing hour.
10	What is the normal arcing time in 8-hour shift for GMAW wire?
	Normally 3 hours but mostly depends on job type & welder.
11	What are the common checkpoints prior to start of GMAW welding?
	Plate condition, gas flow, CO2 -heater, polarity, etc.
12	Can solid wire be used for vertical up or overhead welding?
	Yes
13	Can solid wire be directly used for root run of pipe welding?
	Yes
14	What is the convexity in Weld bead? how it is measured? and what is its acceptance criteria?
	Convexity is the maximum distance between the face of weld and the line joining the weld toes. It is given in respective AWS standard, depends on electrode diameter.
15	What are those slags which form on GMAW weld bead? Can it be avoided? what will happen If they are not cleaned?
	The oxide formed during welding gets deposited as slag islands. It can be reduced through purity selection of gas but can't be eliminated. If not cleaned, then slag inclusion defect may form in the weld deposit.
16	Is grinding allowed for preparation of weld assembly?
	Yes, but before starting welding assembly to be check & free from cracks or other defects

17	What are running and run-in and run-out plates? Why are they used?
	To accommodate any defects during start of the weld and end of the weld these plates are used. Latter they are chopped off from the actual joint.
18	What is the difference between copper coated and non-copper coated wire?
	Copper Coated wire : Solid wire coated with copper. Copper use to protect the wire from rust. Non Copper coated wire : Solid wire without copper coating. Anti rust element used for coating.
19	What is the effect of non-maintenance of inter-pass temperature?
	It will allow grain growth in the weldmetal & reduce the impact toughness.
20	Why is preheating of the Job /Weld Assembly is required? How is the preheating temperature selected?
	Preheat controls the weld metal cooling rate & it will improve the weld ductility by reducing weld hydrogen level, residual stress & controlling hard microstructures. Preheat temperature selection is dependent on the plate thickness, Joint design, base metal carbon content, alloy content & Carbon equivalent number.
21	What is post weld heat treatment? why is it required? And what is its effect?
	PWHT stands for Post Weld Heat Treatment, a process that involves heating a welded material to a temperature below its transformation temperature and holding it there for a set amount of time, Then, slow cooling will start. It depends up on the fall of the weld ductility & development of residual stress in the weld joint. It will reduce the residual stresses & improve the ductility.
22	What is the importance of cast and helix in GMAW Wire?
	Cast: Ensures smooth wire feeding, minimizes spatter, and aids in maintaining arc stability. **Helix**: Affects wire feed consistency, reduces tangling, control the lateral movement of the wire and contributes to stable arc performance.
23	What are the suggested precautions for partial used spool?
	To keep the spool protected from atmospheric contamination.
24	What is the difference between manual arc welding wire and robotic arc welding wire?
	For robotic welding wire more stringent control on diameter, cast, helix, copper coating, etc are required over AWS qualified wire.
25	What are the characteristics of robotic welding wire?
	Close tolerance in diameter, higher (>1000mm) cast, zero helix and minimum copper coating is better.
26	What is the gas flow rate for GMAW welding?
	Generally, 14-15 litre/ minute.
27	What is the gas consumption?
	Approximately 0.5kg/ kg of weld deposit but closely dependent on wire diameter.